

Application Serial No.: 10/091,024
Applicant(s): Houser et al.

Docket No.: N.C. 83,517

Amendments to the Claims:

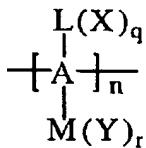
This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (original): A hyperbranched polymeric compound having:

- (1) a polymer backbone portion that is at least partly randomly branched;
- (2) at least one pendant arm extending from said polymer backbone; and
- (3) at least one halogen substituted alcohol or phenol group substituted at the pendant group(s) of the polymer backbone portion.

Claim 2 (original): The compound of claim 1 wherein said compound has the general formula:



wherein A is the hyperbranched backbone portion of the polymer;

L and M are independently selected pendant groups of the polymer backbone;

X and Y are independently selected halogen substituted alcohol or phenol groups;

q and r are independently selected and at least 1; and

n is at least 3.

Claim 3 (original): The compound of claim 2 wherein A is composed of units selected from the group consisting of silicon atoms, carbon atoms, siloxane, carbosilane, silylene moieties, and combinations thereof.

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Claim 4 (original): The compound of claim 2 wherein A is composed of units selected from the group consisting of Si-alkylene, Si-arylene, and Si-alkenylene units.

Claim 5 (original): The compound of claim 2 wherein L and M are independently selected from the group consisting of -alkylene-Si-(alkenylene)₃ and -alkylene-Si-(alkylene-arylene)₃.

Claim 6 (original): The compound of claim 2 wherein:

A is selected from the group consisting of -Si-(CH₂)_n-, where n=1-3; -Si-(CH(CH₂C₆H₅))-; and Si-(CH₂(C=CH₂)CH₂)-;

L and M are independently selected allyl or propylenephenoxy groups; and X and Y are hexafluoroisopropanol groups.

Claim 7 (original): A solution for preparing a chemical vapor sensor comprising:

(a) an amount of a hyperbranched compound having

(1) a polymer backbone portion that is at least partly randomly branched;

(2) at least one pendant group extending from the polymer backbone

portion;

(3) at least one halogen substituted alcohol or phenol group substituted at the pendant group(s) of the polymer backbone portion;

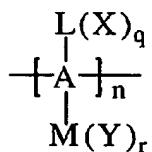
effective to enhance the sensitivity of the sensor to hydrogen bond accepting vapors or nitroaromatic compounds; and

(b) a solvent for said hyperbranched compound.

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Claim 8 (original): The solution of claim 7 wherein said compound has the general formula:



wherein A is the hyperbranched backbone portion of the polymer;

L and M are independently selected pendant groups of the polymer backbone;

X and Y are independently selected halogen substituted alcohol or phenol groups;

q and r are at least 1 and independently selected; and

n is at least 3.

Claim 9 (original): The solution of claim 8 wherein A is composed of units selected from the group consisting of silicon atoms, carbon atoms, siloxane, carbosilane, silylene moieties, and combinations thereof.

Claim 10 (original): The solution of claim 8 wherein A is composed of units selected from the group consisting of Si-alkylene, Si-arylene, and -Si-alkenylene.

Claim 11 (original): The solution of claim 8 wherein:

A is selected from the group consisting of -Si-(CH₂)_n-, where n=1-3; -Si-(CH(CH₂C₆H₅))-; and Si-(CH₂(C=CH₂)CH₂)-;

L and M are independently selected allyl or propylenephylene groups; and

X and Y are hexafluoroisopropanol groups.

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Claim 12 (original): The solution of claim 8 wherein L and M are independently selected from the group consisting of -alkylene-Si-(alkenylene)₃ and -alkylene-Si-(alkylene-arylene)₃.

Claim 13 (original): The solution of claim 7 wherein said solvent is selected from the group consisting of hexane, chloroform, dichloromethane, toluene, xylenes, acetonitrile and tetrahydrofuran.

Claims 14-28 (canceled)